authorities to have been a Jew. With him were associated the Bang's two Jewish physicians, Master Rodrigo and Master Joseph Vecinho. The three savants set to work methodically; and the result of their labours was the manufacture of an improved astrolabe which, used in conjunction with tables of the solar declination which they prepared, rendered it possible to navigate by observation of the sun. Portuguese historians record this discovery with unalloyed pride: for it was from now only that oceanic navigation in its complete sense became possible.

Navigation necessarily required one other aid, without which the instruments were useless—reliable astronomical tables, essential in all work based on solar or sidereal observation.[1] It happens that all the more important astronomical tables of the Middle Ages, without exception, were at least translated or compiled with the help of Jews: in the most important cases they were entirely of Jewish authorship.

Shortly before the capture of Toledo by the Christian forces in 1085, a series of astronomical tables had been drawn up in that city—the swan-song, as it were, of Arab science in the old capital. In the compilation of these (the Toledo Tables, as they are termed) a number of Jewish astronomers had assisted. Some time later, in the thirteenth century, Alfonso the Wise, King of Castile, in his endeavour to naturalise Moslem science in his dominions, set about having these adapted for the use of non-Moslem scholars and brought up to

date. Among those to whom he applied with this object in view were Judah ben Moses Cohen, a Jewish physician, and Isaac

[1]What follows is based upon, and in part quoted from, Joseph Jacob's admirable summary in his *Jewish Confribiitions to Civilisation*—a superb achievement which, had he been spared to complete it, would have rendered a great part of the present work unnecessary.
Much use has been made in this section also of the chapter in *The Legacy of Israel* on "The Jewish Factor in Mediaeval Thought."